Amendments to the Claims:

1) Please cancel the second occurrence of claim 42 without prejudice or disclaimer of the subject matter thereof.

2) Please add new claim 48 which is identical to cancelled duplicated claim 42.

Listing of Claims:

Claims 1-27 (Canceled).

Claim 28 (Original): A method for controlling the air flow of a combustion engine with direct fuel injection and at least one intake and one exhaust device per cylinder, said method comprising the steps of:

providing a combustion engine having cylinders each including a combustion chamber, at least one controllable gas outlet per cylinder attachable to said compression chambers of said cylinders of said combustion engine, and at least one exhaust device attachable to each of said cylinders of said combustion engine, said exhaust device having exhaust valves;

registering an accelerator pedal signal with a value (γ) depending on the position of said accelerator pedal, said accelerator pedal signal being registered by an accelerator pedal position sensor;

registering a rotation speed signal with a value (n) depending on the rotation speed of said combustion engine, said rotation speed signal being registered by a rotation speed sensor which determines the rotation speed of a crank shaft of said combustion engine;

defining load conditions using said value (γ) and value (n);

determining a load-condition-dependent opening period (t_{Li}) of said gas outlet in said compression chamber of each cylinder of said combustion engine during the compression stroke;

determining a load-condition-dependent fuel injection quantity (~t_{Li}) per work cycle and cylinder; and

determining advance angles (ZW) as a function of said load conditions.

Claim 29 (Original): The method as set forth in claim 28, wherein said advance angles (ZW) are determined as a function of engine rotation speed (n) and a fuel quantity signal ($\sim t_{Li}$).

Claim 30 (Original): The method as set forth in claim 29, wherein said different opening periods (t_{Li}) for said respective gas outlets in said compression chamber are determined for different cylinders in a way that all fired cylinders are supplied with approximately the same quantity of fuel-air mixture.

Claim 31 (Original): The method as set forth in claim 30 further comprising the step of closing said gas outlet in said compression chamber for each of said respective cylinder having a critical partial-load condition.

Claim 32 (Original): The method as set forth in claim 31 further comprising the step of changing said opening periods ($\sim t_{Li}$) of said gas outlets in said compression chambers of unfired cylinders if a partial-load signal is present, and performing load control for the fired cylinder within defined limits.

Claim 33 (Original): The method as set forth in claim 32 further comprising the step of choosing the start of opening (GO) of said gas outlet in said compression chamber of each cylinder of said combustion engine in such a way that an exhaust gas counter pressure is greater than the pressure in said cylinder to enable exhaust gas recycling.

Claim 34 (Original): The method as set forth in claim 33 further comprising the step of modifying the accelerator pedal signal by an engine controller to control operating parameters of said combustion engine so that an operating variable to be controlled moves in the direction of the desired target value for said operating parameter, said operating parameters being selected from the group consisting of advance angle (ZW), fuel quantity injected, injection time, closing time of said gas outlet, and closing time of an exhaust valve.

Claim 35 (Original): The method as set forth in claim 34 further comprising the step of monitoring possible pinging of said combustion engine at each cylinder, and setting said opening periods ($\sim t_{Li}$) of said gas outlets in said compression chamber of each cylinder of said combustion engine to prevent pinging.

Claim 36 (Original): The method as set forth in claim 35 further comprising the step of using said exhaust valve to control the function of said gas outlet for adjusting the air quantity in each cylinder during the compression stroke.

Claim 37 (Original): The method as set forth in claim 36, wherein said air quantity in said cylinder is determined by measuring exhaust gas pressure (p_{Ab}) downstream of said gas outlet during the compression stroke.

Claim 38 (Original): The method as set forth in claim 37, wherein said opening period (t_{Li}) and the opening stroke of said gas outlet during the compression stroke is controlled as a function of said exhaust gas pressure signal (p_{Ab}), said engine speed (n) and said accelerator pedal position (γ).

Claim 39 (Original): The method as set forth in claim 37, wherein said opening period (t_{Li}) and the opening stroke of said gas outlet during the compression stroke is determined by the pinging limit of said combustion engine in a way that said opening period (t_{Li}) or said opening stroke are stepwise increased until fuel pinging occurs and said opening period (t_{Li}) and opening stroke that was determined one step before the pinging occurred is set as the maximum value.

Claim 40 (Original): The method as set forth in claim 28 further comprising the step of maintaining a constant exhaust gas temperature (T_{Ab}) during a regeneration process of a particle filter in an exhaust pipe, the engine load and the exhaust temperature are increased by increasing said opening period (t_{Li}) and the opening stroke of said gas outlet of each cylinder during the exhaust stroke, which increases said exhaust gas temperature (T_{Ab}) and the engine load, said opening period (t_{Li}) and the opening stroke are controlled as a function of said exhaust temperature (T_{Ab}) until said regeneration process is completed.

Claim 41 (Original): The method as set forth in claim 28 further comprising the step of sending control signals for controlling the air flow of said combustion engine to said actuators for said gas outlet device and exhaust valves as well as injection valves by said integrated engine control system via an electronic interface.

Claim 42 (Original): The method as set forth in claim 28 further comprising the step of determining an error in the control of the air flow by a diagnostic function

module, said errors are archived in a memory system of said engine controller in readable form.

Claim 43 (Original): A method for controlling the air flow of a combustion engine, said method comprising the steps of:

providing a combustion engine having a work cycle, a crank shaft, cylinders, a combustion chamber for each cylinder, at least one controllable gas outlet device attachable to said compression chambers of said cylinders, and at least one exhaust device attachable to each of said cylinders of said combustion engine, said gas outlet device and exhaust device each having actuators, said exhaust device having exhaust valves;

providing at least one accelerator pedal position sensor, at least one rotation speed sensor, at least one pressure sensor, at least one pinging sensor, at least one temperature sensor, and an engine controller having an integrated control unit;

registering an accelerator pedal signal with a value (γ) depending on the position of said accelerator pedal, said accelerator pedal signal being registered by said accelerator pedal position sensor;

registering a rotation speed signal with a value (n) depending on the rotation speed of said combustion engine, said rotation speed signal being registered by said rotation speed sensor which determines the rotation speed of said crank shaft of said combustion engine;

defining load conditions using said value (γ) and value (n);

determining a load-condition-dependent opening period (t_{Li}) of said gas outlet device in said compression chamber of said each cylinder of said combustion engine during a compression stroke;

determining a load-condition-dependent fuel injection quantity ($\sim t_{Li}$) per said work cycle and cylinder;

determining advance angles (ZW) as a function of said load conditions;

sending control signals for controlling the air flow of said combustion engine to said actuators for said gas outlet device and exhaust valves as well as

injection valves by said integrated engine control system via an electronic interface;

determining an error in the control of the air flow by a diagnostic function module, said errors are archived in a memory system of said engine controller in readable form;

monitoring any pinging of said combustion engine at each cylinder, and setting said opening periods (t_{Li}) of said gas outlet device in said compression chamber of each cylinder of said combustion engine to prevent pinging; and

determining a braking moment of said combustion engine in a push mode by controlling said opening period (t_{Li}) and said opening stroke of said exhaust valve during an exhaust stroke, where the compression of combustion gasses that determines said braking moment is adjusted by reducing said opening period (t_{Li}) and reducing said valve stroke.

Claim 44 (Original): A device for controlling the air flow of a combustion engine having cylinders each including a combustion chamber, and a work cycle, said device comprising:

at least one controllable gas outlet per cylinder attachable to said combustion chambers of said cylinders, said gas outlet is a controllable fuel injection device;

at least one exhaust device per cylinder attachable to said combustion chamber of said cylinder;

at least one accelerator pedal position sensor for determining the position of an accelerator pedal;

at least one rotation speed sensor for determining the rotation speed of a crank shaft of said engine;

at least one temperature sensor for determining the temperature in said exhaust gas device;

at least one pressure sensor that measures the pressure downstream of said gas outlet of each cylinder; and

an engine controller having an integrated control unit with algorithms for determining air flow, said engine controller provides signals that determine an opening period and valve stroke of said gas outlet.

Claim 45 (Original): The device as set forth in claim 44, wherein said gas outlet and exhaust device each of which further comprising actuators for controlling the opening period of their respective said gas outlet and exhaust device, said actuators being controlled by output signals of said engine controller.

Claim 46 (Original): The device as set forth in claim 45 further comprising a pinging sensor for determining any pinging of said engine, wherein said engine controller sends signals to said actuators for said gas outlet and exhaust devices of each cylinder during a compression stroke to set a compression ratio of said combustion engine, and wherein the setting of said compression ratio by said engine controller is a function of the signal of said pinging sensor.

Claim 47 (Original): The device as set forth in claim 46, wherein said integrated control unit of said engine controller contains a device for approximate calculation of a desired fuel/air ratio based on the current engine operating conditions that are determined by said accelerator pedal position, rotation speed, pressure, temperature, and pinging sensors, and wherein said approximate calculation device is connected to said actuators and to a fuel control device and sends a control signal to said actuators for said gas outlet or exhaust devices of said cylinders as well as to said fuel control device to set said fuel/air ratio so that it corresponds to said desired fuel/air ratio, before pressure measurements are performed by said pressure sensor in said exhaust device.

Claim 48 (New): The method as set forth in claim 28 further comprising the step of determining a braking moment of said combustion engine in a push mode by controlling said opening period (t_{Li}) and said opening stroke of said exhaust valves during an exhaust stroke, where the compression of combustion gasses that determines said braking moment is adjusted by reducing said opening period (t_{Li}) and reducing the exhaust valve stroke.